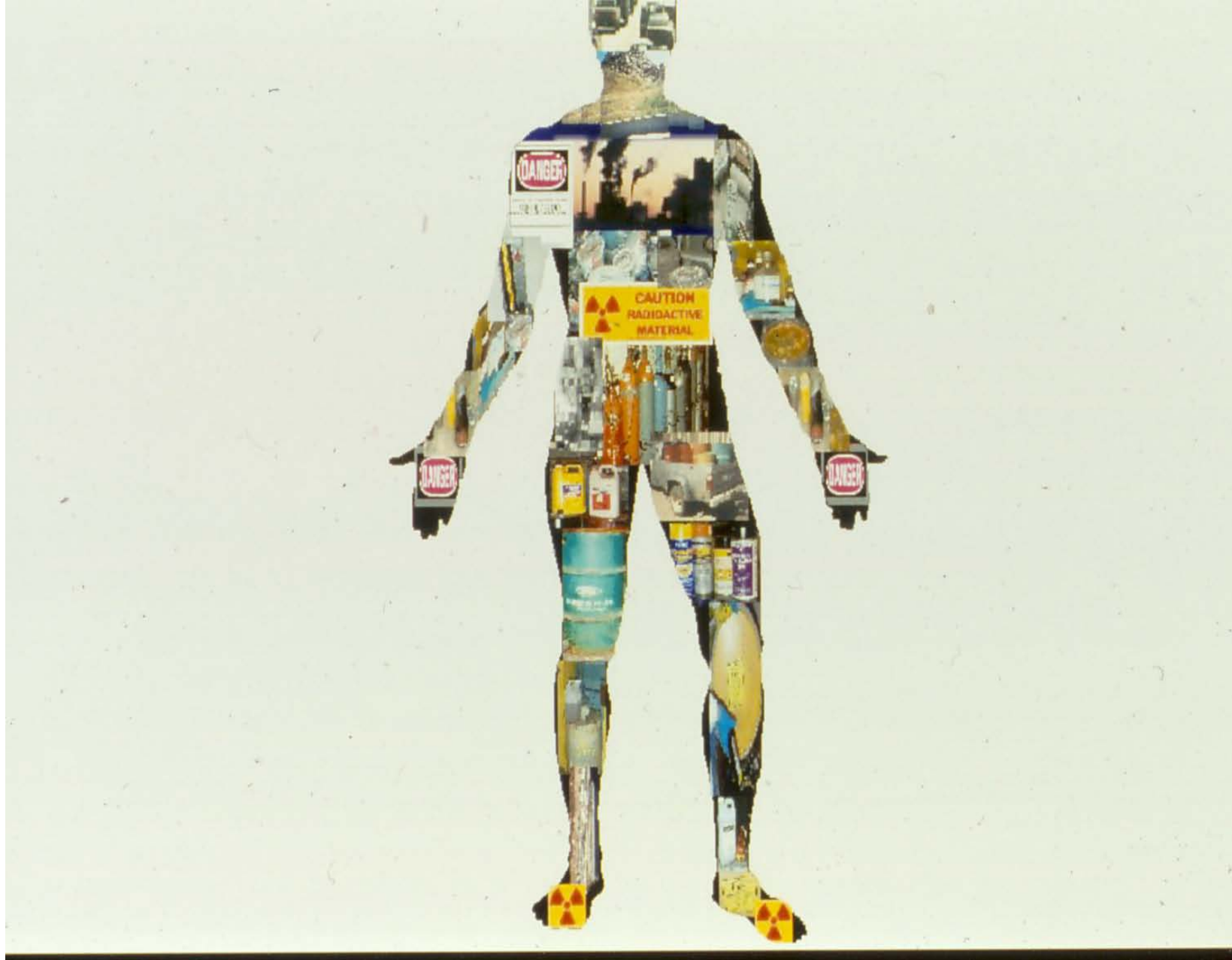


Occupational and Environmental Health Risks in Health Care



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Nursing 1



CDC, (2009) Fourth National Report on Human Exposure to Environmental Chemicals

<http://www.cdc.gov/exposurereport/>

Charlotte Brody, RN

Body Burden Studies

Chemicals found in Charlotte:

214 tested

87 found



Charlotte Brody, RN

Body Burden

Chemicals found in Charlotte

number: associated with:

- 54 Birth defects and dev delays
- 53 Immune toxicants
- **52 Cancer**
- 37 Brain and nervous system
- 23 Reproduction and fertility
- 16 Hormone activity
- 10 Gastrointestinal (including liver)





Hazardous Chemicals in Health Care: A Snapshot of Chemicals in Doctors and Nurses

- 12 Doctors
- 8 Nurses
- 62 Chemicals (including congeners)



- BPA
- Perfluorinated compounds
- Phthalates
- PBDEs
- Triclosan



- **BPA** – EDC, repro toxicant, breast and prostate Ca, brain function, obesity, thyroid dysfunction
- **Perflourinated compounds** – EDC, Immunotoxicant, liver/pancreatic tumors (animal)
- **Phthalates** – reproductive development
- **PBDE** – neurotoxicant (brain function, memory, behavioral problems)
- **Triclosan** – thyroid dysfunction, EDC

At least 24 chemicals were found in any given person studied.



BodyBurden

The Pollution in Newborns

A benchmark investigation of industrial chemicals, pollutants, and pesticides in human umbilical cord blood







Asthmagens and Asthma Triggers in health care

- Chemical Cleaners,
- Disinfectants/sterilizers
- Natural rubber latex
- Pesticides
- Volatile Organic Compounds (VOCs)
- Baking flour
- Acrylics: methyl methacrylate and cyanocrylate
- Perfumes/fragrances
- Phthalates (plasticizers)
- Environmental Tobacco Smoke (ETS)
- Biologic allergens
- Pharmaceuticals





Why a survey on workplace exposures?

- NIOSH estimates the average hospital contains more than 300 chemicals
- Nurses incur exposure risks daily
 - Drug residue
 - Sterilizing chemicals
 - Housekeeping cleaners
 - Pesticides
 - Anesthetic waste gases
 - Radiation

What the survey examined

- Exposures to 11 chemicals or hazardous agents, including
 - Glutaraldehyde
 - Ethylene Oxide
 - Medications
 - Medical devices such as mercury and ionizing radiation
 - Anesthetic Gases
 - Natural Rubber Latex
 - Hand and Skin Disinfection Products
 - Housekeeping Chemicals

Who Completed the Survey

- Total respondents were 1,552 from all 50 states:
 - **80.4% Registered Nurses**
 - **13.5% Advanced Practice Registered Nurses**
 - **3.5% Licensed Practical Nurses**
 - **1.9 % Other Health Care Practitioners**
 - **92.3% currently in practice**
 - **44.7% in practice 1 to 20 years**
 - **55.3% in practice 20 to 55 years**

Survey Findings ~ Hand & Skin Disinfection

- **96% reported exposures**
- **39% higher rates of asthma**



Survey Finding ~ Anesthetic Gases

36% reported exposures



**Up to seven times higher
rates of birth defects in
their children (central
nervous system,
cardiovascular,
genitourinary, and
musculoskeletal)**

Survey Findings ~ Housekeeping Chemicals

- 92% reported exposures
- 47% higher rates of asthma



Survey Findings ~ Medications



- 95% reported exposures
- 14% higher rates of cancer

Survey Findings ~ Medications

Antiretroviral Meds: Suppress HIV virus



- 47%
- 19% higher rates of difficulty conceiving

Survey Findings ~ Medications

Chemotherapeutic Agents



- 41% reported exposures
- 42 percent higher rates of cancer than other nurses.

Survey Findings ~ Mercury Containing Devices

- **77% reported using mercury-containing devices at work.**
- **130% higher rates of nervous system problems**

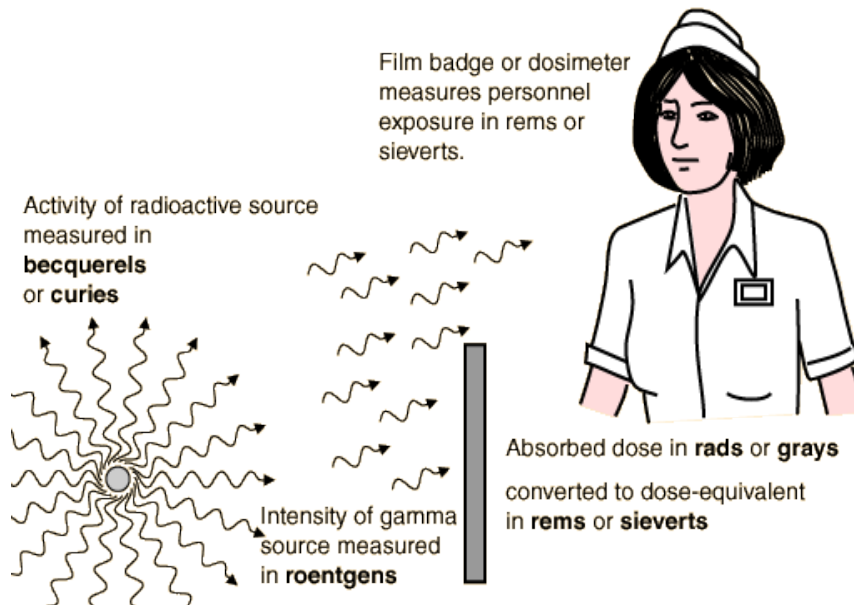


Survey Findings ~ Personal Care Products

- 97% reported on-the-job exposures
- 1/3 of all products contain one or more ingredients linked to cancer
- 40% contain “fragrances” (mixtures often associated with allergic reactions and some associated with cancer risks)



Survey Findings ~ Ionizing Radiation



- **53% reported on-the-job exposures**
- **16% higher rates of cancer**

Survey Findings ~ Latex

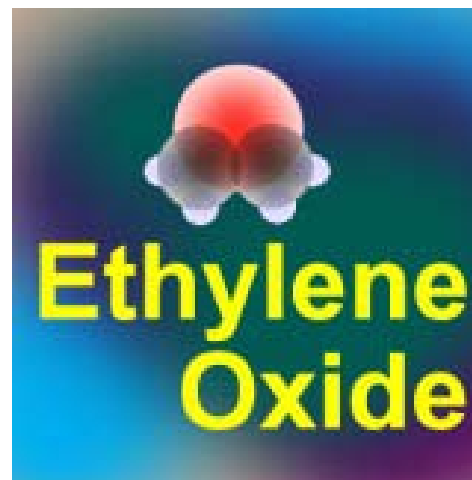


- **64% percent of more than 1,500 nurses reported high (at least twice per week) exposure for five years or more.**
- In our survey, nurses with frequent, long-term exposures to latex (at least weekly for at least ten years) reported **39 percent higher rates of asthma** than other nurses.

Survey Finding ~ Sterilization & Disinfectant Agents

Ethylene Oxide

- **29% reported on-the-job exposures**
- **45% higher rates of asthma**



Survey Finding ~ Sterilization & Disinfectant Agents

Glutaraldehyde



- 52% reported on-the-job exposures
- 46% higher rates of asthma





Green Team Logos



Menu of Programs

- Environmentally preferable purchasing
- Energy efficiency
- Glutaraldehyde/EtO elimination
- Green cleaning and microfiber mops
- Green construction, renovation & design
- HIPAA/Confidential paper management
- Integrated pest management
- Mercury elimination
- Pharmaceutical waste management
- PVC/DEHP elimination
- Recycling
- Red bag waste minimization
- Reusable sharps containers
- Single-use device reprocessing
- Solvent recovery
- Sustainable Foods
- Universal waste management
- Water conservation

Hospital Environmental Health Assessment Tool

Assessment		Yes	No	N/A	Standard of Practice
Hazardous Materials 	Does your hospital have:				
	A written Hazard Communication Policy regarding potentially harmful chemicals?				
	Have you been trained regarding the specific potential health effects associated with the cleaning products, disinfectants, pharmaceuticals, and other products that you are commonly exposed to at work?				
	Mercury fever thermometers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Mercury sphygmomonometers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Mercury thermostats?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	GI devices (i.e., Miller-Abott tubes)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Latex gloves?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	DEHP-containing IV bags/tubing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Are pesticides used on hospital grounds?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	If so, what? _____				
	Are pesticides used in the hospital?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	If so, what? _____				
Waste Management  	Do you recycle:				
	Paper / cardboard?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Plastic / glass?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Electronic waste?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Batteries?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Blue Wrap?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Florescent light bulbs?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Kitchen waste to compost?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Do you require double-sided copies?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	Do you know where your trash goes?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Cleaning 	Does your hospital use:				
	Environmentally safe cleaning products and methods?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	"Energy Star" appliances and equipment?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

DEHP in IV bags and tubing (di-ethylhexyl phthalates)



DEHP Leaches into IV fluids





The Power of Nurses



- Highest percentage of employees in facility
- Nurses understand the connection between environmental issues and health
- Precautionary Principle
- Nurses are patient advocates
- Nurses bridge the gap between administrative executives and floor staff
- End user of most products

ANA Setting the Stage

- ANA adopts Environmental Health Principles
- ANA 2010 Scope and Standards of Practice
Environmental Health Standard of Practice

Integration of O/E Health into Nursing Education

- American Academy of Nurses
- American Association of Colleges of Nurses
- National League for Nursing

- Alliance of Nurses for Healthy Environments
 - www.enviRN.org

